

Remarks/Arguments

Applicant has received and carefully reviewed the Office Action mailed on April 19, 2007, setting a three month shortened statutory period for reply ending on July 19, 2007. Claims 1-14 and 16-23 are pending. Reconsideration and reexamination are respectfully requested.

Rejection under 35 U.S.C. § 102(b)

Claims 1-3, 7, 8 and 21-23 are rejected as being anticipated by Bartels (U.S. Patent No. 4,718,858). The Examiner asserts that Bartels shows a firing rate control mode means 55 as providing a low fire hold operation at the outset of the operation of the device, pointing to column 6, lines 25-64 for support. The Examiner then asserts that this low fire hold will be maintained for a fixed time period, unless the pressure increases or decreases above or below P_{Hi} or P_{Lo} , which are asserted to be the predefined conditions.

Applicants respectfully disagree. While Bartels appears to teach a fire hold operation at the outset of the operation of the device, this appears to be related to a fixed time between the start command and the actual firing of the boiler. See column 6, lines 31-41. Bartels also teaches "automatic firing rate control mode means 55 can also provide a low fire hold operation at the outset of the operation of the device. This can be used as a fixed time period immediately following the start up for stabilization to allow the water temperature in the boiler to reach some minimum temperature, and the differential temperatures between the output and the input to reach a minimum temperature." (emphasis added) See column 6, lines 44-51. Bartels thus appears to disclose maintaining a low fire rate for a fixed time period immediately following start up.

In contrast, claim 1 recites in relevant part, "maintaining the first firing rate for a period of time unless a predefined condition occurs during the period of time." It does not appear that Bartels discloses maintaining the first firing rate for a period of time unless a predefined condition occurs during the period of time, as recited in claim 1. Instead, the cited portion of Bartels appears to disclose merely maintaining a low firing rate until a "fixed time period" expires. The pressure monitoring by Bartels appears to be related to determining when to initiate an "on cycle". An "on cycle" can be initiated when the start pressure falls below the actual

pressure and incorporates a time delay between the start command and the actual firing of the boiler." See column 6, lines 37-41. Bartels thus appears to suggest monitoring pressure when the start pressure falls below the actual pressure, and then incorporates a time delay between the start command and the actual firing of the boiler. Bartels does not appear to teach the claimed method steps of activating a stage at a first firing rate and maintaining the first firing rate for a period of time unless a predefined condition occurs during the period of time. As such, and for these and other reasons, claim 1 is believed to be clearly patentable over Bartels.

The Examiner asserts that Bartels teaches the elements of dependent claims 2 and 3 at column 6, line 50. Applicants respectfully disagree. The cited portion of Bartels states:

This can be used as a fixed time period immediately following the start up for stabilization to allow the water temperature in the boiler to reach some minimum temperature, and the differential temperatures between the output and the input to reach a minimum temperature.

Bartels, column 6, lines 46-51. As can be seen, this portion of Bartels appears to suggest using a fixed time period immediately following startup. As such, this portion of Bartels does not appear to suggest the claimed method steps of activating a stage at a first firing rate and maintaining the first firing rate for a period of time unless a predefined condition occurs during the period of time. Moreover, claim 2 recites:

2. (Original) The method of claim 1 wherein the predefined condition includes when the temperature of a circulating fluid in the boiler system drops below a predetermined level.

Emphasis added. As can be seen, claim 2 recites that the predefined condition recited in claim 1 includes when the temperature of a circulating fluid in the boiler system drops below a predetermined level. That is, in claim 2, the first firing rate is maintained for a period of time unless the temperature of a circulating fluid in the boiler system drops below a predetermined level. This is clearly not suggested by the cited portion of Bartels.

Claim 3 recites:

3. (Original) The method of claim 1 wherein the predefined condition includes when a rate of change for a sensed temperature for a circulating fluid in the boiler system rises above a predetermined level.

Emphasis added. As can be seen, claim 3 recites that the predefined condition recited in claim 1 includes when a rate of change for a sensed temperature for a circulating fluid in the boiler system rises above a predetermined level. That is, in claim 3, the first firing rate is maintained for a period of time unless the rate of change for a sensed temperature for a circulating fluid in the boiler system rises above a predetermined level. This is clearly not suggested by the cited portion of Bartels.

Applicant notes that the particulars of dependent claims 7 and 23 were not addressed in the Office Action. In order to avoid piecemeal prosecution, Applicant respectfully requests that the Examiner provide a detailed explanation of the rejections in any subsequent action.

Independent claims 8 and 21 are believed to be patentable over Bartels for at least the reasons set forth above with respect to claim 1.

Rejection under 35 U.S.C. § 103(a)

Claims 4-6, 9-14 and 16-20 are rejected as being unpatentable over Bartels in view of Pouchak (U.S. Patent No. 6,536,678). Regarding independent claims 11, 12, 13, 16, 17, and 19, the Examiner asserts that Bartels discloses all of the limitations of the claims except for the boiler system comprising multiple stages. Applicants respectfully disagree.

Independent claims 11 and 12 recite a method and controller including:

receiving an indication that a stage that is not active is to become active;
determining whether the stage is the first stage to become active; and
if the stage is the first stage to become active, activating the stage at a first firing rate and maintaining the first firing rate for a period of time unless a predefined condition occurs during the period of time.

Independent claim 13 recites the specific method steps of:

determining whether to activate a stage of the boiler system when no stages are active; and, if so:
activating a stage; and

controlling the stage with a stable firing rate independent of heat load for a period of time unless one or more of a number of conditions is satisfied during the period of time, wherein the conditions include whether the stage is no longer needed.

Emphasis added. Bartels does not appear to teach such specific method steps. The Examiner has not addressed these specific steps. The mere fact that Pouchak discloses the presence of a boiler system comprising multiple stages does not provide the necessary teaching, motivation or suggestion of the specific method steps recited in the claims. Dependent claim 14 recites the conditions also include whether it is determined that the stage cannot operate without potential damage at the stable firing rate. The Examiner has not addressed this claim element either, and neither Bartels nor Pouchak appear to teach or suggest such a step.

Additionally, the Examiner has not addressed the specific elements of the controller and systems recited in independent claims 16, 17, and 19. Neither Bartels nor Pouchak appear to teach or suggest the specific elements recited in the claims.

Regarding dependent claims 4-6, the Examiner states that the bypass valve taught in Pouchak could be positioned in the system of Bartels to avoid condensation. As discussed above, Bartels does not appear to teach or suggest the specific method steps of “maintaining the first firing rate for a period of time unless a predefined condition occurs during the period of time.” Pouchak does not appear disclose what Bartels lacks. In addition, claim 4 recites that the predefined condition includes a likelihood of condensation within the primary heat exchanger of a boiler system. Neither Bartels nor Pouchak appear to disclose such a method. Indeed, the Examiner does not further explain how the predefined condition recited in claims 1 and 4 is taught by the combination of references. For these and other reasons, the combination of Bartels and Pouchak do not appear to teach each and every element of claim 4, and thus the combination of references cannot render claim 4 obvious. For these and other reasons, claim 4 is believed to be clearly patentable over Bartels in view of Pouchak.

As the burden of establishing a *prima facie* case of obviousness lies with the Examiner, Applicant is unable to determine how the secondary reference is to be applied. Moreover,

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Applicant believes that, in light of the above remarks with reference to claim 1 and 4, and for other reasons, the rejection of claim 4, as well as dependent claim 5, should be withdrawn.

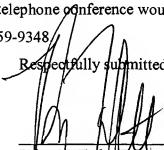
The rejections of claims 9-10 also fail to address the predefined condition recited in base claim 8, and for these and other reasons, Applicant believes that a *prima facie* case of obviousness has not been established. Withdrawal of the rejection of claim 9-10 is requested.

Regarding claim 6, the Examiner states that inclusion of an inlet temperature sensor would be obvious as "mere duplication of parts has no patentable significance unless a new and unexpected result is produced". The relevance of this statement to the rejection is unclear, as the claim recites a part (an inlet temperature sensor) that is not a "duplicate" of any other part of the system, the inlet temperature sensor being defined by both its function (temperature) and location (the inlet to the secondary heat exchanger). Furthermore, the rejection fails to address the shortcomings of the rejections of claim 1 and 4 as discussed above. At least for the reasons stated with respect to claim 1, as well as claim 4, claim 6 is believed to be clearly patentable over the cited combination.

Reconsideration and reexamination are respectfully requested. It is believed that each of claims 1-14 and 16-23 is in condition for allowance, and issuance of a Notice of Allowance in due course is respectfully requested. If a telephone conference would be of assistance, please contact the undersigned attorney at 612-359-9348.

Respectfully submitted,

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